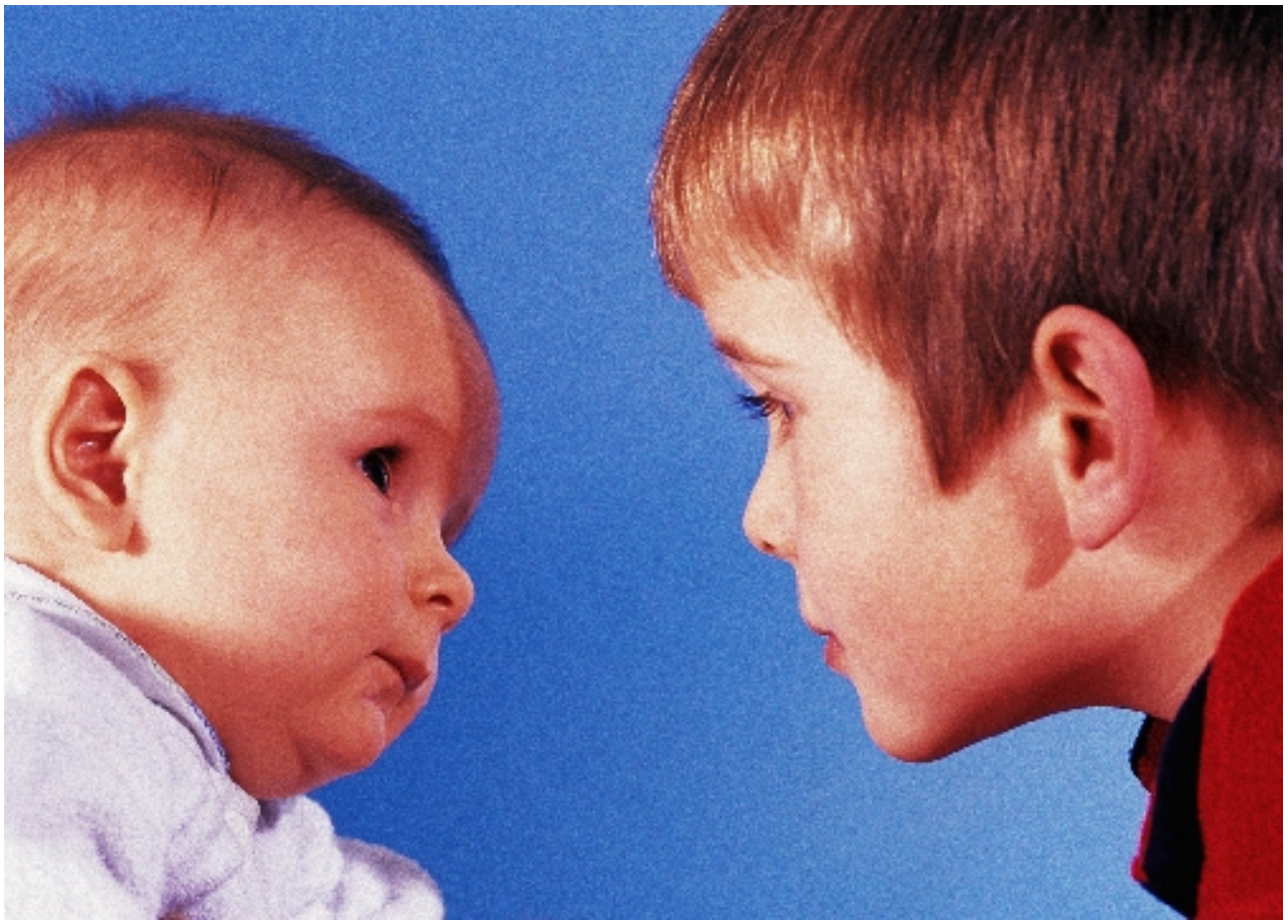
Missouri Childhood Lead Poisoning Prevention

Missouri Department of Health and Senior Services



Annual Report Fiscal Year 2004

Missouri Childhood Lead Poisoning Prevention Annual Report Fiscal Year 2004

Table of Contents

About Our Program

PROGRAM MISSION:

Assure the children of Missouri a safe and healthy environment through the detection, treatment, and primary prevention of lead exposures that may cause illness or death.

The Missouri Department of Health and Senior Services' (DHSS) Childhood Lead Poisoning Prevention Program (CLPPP) works to assure that doctors and nurses have the right information and tools available to screen patients under the age of six for lead. State guidelines describe proper treatment of children with elevated blood lead levels (EBL) of at least ten micrograms per deciliter (10 µg/dL), which is the level of concern recommended by the Centers for Disease Control and Prevention (CDC). The program was established in 1993.

Follow-up activities and case management are provided for children with an EBL $\geq$ 10 µg/dl. These follow-up activities assist in helping the family understand the causes and health effects of childhood lead poisoning along with interventions that can reduce the current elevation, and help prevent repeated elevations. Risk assessments provide the family with information about where lead hazards exist in and around their home, and how best to decrease the risks of these hazards.

Lead poisoning prevention educational materials are developed and distributed to create an awareness of lead poisoning. DHSS works with the local public health agencies, the medical community, other state agencies, businesses, schools, and community organizations in efforts to prevent childhood lead poisoning. The Missouri CLPPP created Leadosaurus, a dinosaur character, to promote lead poisoning prevention. The Leadosaurus costume may be borrowed from DHSS by any organization in Missouri wanting to increase lead poisoning prevention education and blood lead testing.

The program currently uses the Centers for Disease Control and Prevention database to collect lead-specific data from medical and lead program activities pertaining to children under the age of six years. This database is part of a statewide surveillance system that provides an electronic means of tracking data from medical and environmental organizations. The data is used for statistical and surveillance purposes.

The Lead Licensing and Accreditation Program is responsible for licensing lead abatement and inspection professionals and accrediting lead training providers. For more information visit their web site: www.dhss.mo.gov/Lead/.

The goal of CLPPPs in the United States is to eliminate childhood lead poisoning in the U.S. by 2010.

Lead Poisoning in Missouri

Lead poisoning is one of the most common and preventable environmental health problems today. Almost half a million children in the United States are estimated to have elevated blood lead levels of at least 10 µg/dl. According to 2004 Missouri blood lead testing data, 2,700 children under the age of six were identified with elevated blood lead levels.

The primary lead hazard to children in Missouri is deteriorated lead-based paint. Lead-based paint was banned for residential use nationwide in 1978. Any home built before 1978 may contain leaded paint. The highest risk of lead exposure for children is found in homes built before 1950, when most paint contained a high percentage of lead. More than twenty-three percent (23.6%) of the housing stock in Missouri was built before 1950. Sixty counties in Missouri have greater than twenty-three percent (23.6%) pre-1950 housing stock.

Lead mining and smelting is an important part of Missouri's history. Lead in Missouri was first discovered along the Meramec River by French explorers in the 1700s while searching for gold and silver. Missouri became the dominant lead-producing state in the nation in 1907. It has remained number one ever since. Most early lead production came from the Old Lead Belt district of southeast Missouri in the Park Hills-Bonne Terre area, and in the Tri-State Zinc-Lead district in southwest Missouri around Joplin. Today, all of the state's lead production comes from the New Lead Belt, also known as the Viburnum Trend district. This district is a very narrow, 35-mile-long ore district extending southward from the small town of Viburnum, Iron County, in Southeast Missouri. Mining waste products in these areas often end up on driveways, in yards, or even in children's play areas, while dust, air and soil around mining activity have consistently shown elevated levels of lead contamination.

Lead is a shiny, silver-colored metal found naturally in the earth's crust. Lead has historically been used in a variety of ways including in paints, gasoline, batteries, bullets, and some vinyl products, such as mini-blinds. Fine particles of processed or recycled lead and/or lead dust become a health hazard when they are taken into the body through inhalation (breathing) and/or ingestion (swallowing).

Lead affects almost every organ and system in the body. The effects are the same whether it is breathed or swallowed. Lead damages the brain, central nervous system, kidneys, and immune system. Lead in the human body is most harmful to young children under six years of age. It is especially detrimental to children less than three years of age due to their rapidly developing systems.

A blood test is used to determine lead levels. Lead can be measured in blood drawn from a vein or capillary (fingerstick). Blood lead levels are measured and reported as micrograms of lead per deciliter of whole blood (µg/dL).

Statewide Screening Plan

Missouri Senate Bill 266, passed in 2001, required DHSS to promulgate rules and regulations to establish a statewide screening plan. The rules and regulations define criteria for establishing geographic areas in the state considered to be at higher risk for lead poisoning; outline blood lead testing requirements and protocols; and define lead testing follow-up and treatment procedures.

In developing these regulations, CLPPP applied Missouri surveillance and census data to establish criteria for Universal Testing (high-risk) areas in Missouri. Based upon those criteria, and as required by state statute, the following activities will occur in Universal Testing Areas:

- Any child under the age of six living in or visiting for more than 10 hours per week in the high-risk area will be tested annually for lead.
- Childcare facilities must record a "proof of lead testing", signed by the health care provider, within 30 days of the child's enrollment. If the parent/guardian does not provide proof, or a written statement stating why they do not want the child tested, the childcare facility is to offer the parent assistance in scheduling a test.

Areas of the state not requiring Universal Testing will require testing of children under certain circumstances. In Targeted Testing Areas the following activities shall occur:

- From six months to six years of age, every child will be screened annually, by verbal risk assessment, to determine whether they are at high risk.
- Every child less than age six, found to be at high risk, will be tested for lead.
- All Medicaid eligible children shall be assessed by the Healthy Child and Youth (HCY) Lead Risk Assessment Guide questionnaire and/or be blood lead tested at the ages stipulated by the Federal Program Guidelines (12 months of age, 24 months of age, or 12 to 72 months of age).

During 2004, the CLPPP further clarified areas of Missouri at greater risk for lead poisoning. Kansas City, Jackson County and St. Louis County were designated into high-risk zip codes. Areas of Reynolds and Iron counties were also broken into high-risk zip codes to accurately reflect the possibility of lead exposure from past and present mining activity.

Four counties were able to go from Universal to Targeted testing due to an increase in numbers of children tested and lack of children identified with an EBL. An updated Universal Testing map was published in August 2004 and mailed to all health care providers and child-care providers in areas that were effected by a change in risk status.

Reporting of Blood Lead Testing

Missouri's disease reporting rule was updated in October 2000. This rule: 1) requires reporting of all blood lead tests both elevated and non-elevated; and 2) clarifies demographic patient information required with the report. This rule requires all healthcare providers and laboratories to report. All blood lead test results are required to be reported to the DHSS regardless of the age of the individual or the reported lead level. This is in accordance with the Reporting Rule 19 CSR 20-20.020. Complete text of the rule may be found on the Missouri Secretary of State's website: **www.sos.state.mo.us/adrules/csr/current/19csr/19c20-20.pdf**

The following information is required:

- Designate the test performed
- Results of the test
- Name and address of the attending physician
- Name of the disease or condition diagnosed or suspected
- Date the test results were obtained
- Patient's complete name and home address with zip code
- Patient's age and date of birth
- Patient's sex and race

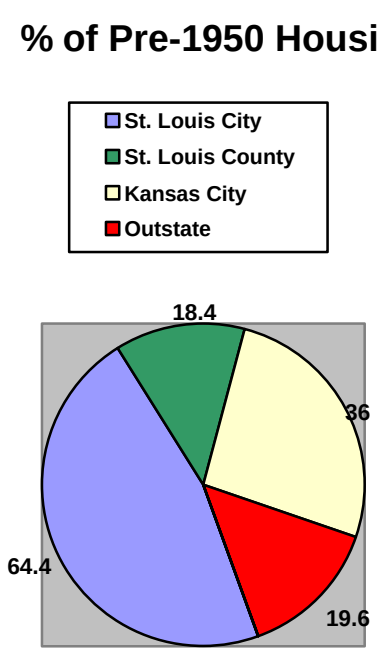
Healthcare providers should assure that the laboratory they are using is reporting to DHSS.

County	Pre 1950 Housing %	County	Pre 1950 Housing %	County	Pre 1950 Housing %
Adair	25.3%	Henry	27.8%	Platte	8.4%
Andrew	28.6%	Hickory	12.4%	Polk	21.5%
Atchison	51.7%	Holt	46.6%	Ralls	23.5%
Audrain	30.8%	Howard	39.3%	Randolph	33.2%
Barry	21.4%	Howell	18.7%	Ray	25.5%
Barton	36.6%	Iron	20.5%	Reynolds	16.4%
Bates	33.8%	Jackson	27.8%	Ripley	15.5%
Benton	13.2%	Jasper	30.8%	Saline	34.7%
Bollinger	20.5%	Jefferson	10.3%	Schuyler	45.5%
Boone	10.5%	Johnson	15.8%	Scotland	48.3%
Buchanan	43.1%	Knox	45.6%	Scott	21.6%
Butler	17.1%	Laclede	16.9%	Shannon	20.3%
Caldwell	35.1%	Lafayette	30.5%	Shelby	43.9%
Callaway	15.2%	Lawrence	29.5%	St. Charles	4.7%
Camden	4.1%	Lewis	35.7%	St. Clair	28.8%
Cape Girardeau	20.0%	Lincoln	14.8%	St. Francois	22.2%
Carroll	43.3%	Linn	43.4%	St. Louis City	64.6%
Carter	14.2%	Livingston	35.0%	St. Louis County	18.4%
Cass	11.6%	Macon	37.3%	Ste. Genevieve	19.1%
Cedar	22.1%	Madison	23.9%	Stoddard	19.0%
Chariton	38.7%	Maries	24.8%	Stone	8.6%
Christian	8.9%	Marion	40.9%	Sullivan	45.4%
Clark	34.4%	McDonald	22.4%	Taney	6.5%
Clay	11.9%	Mercer	37.2%	Texas	20.5%
Clinton	28.7%	Miller	16.3%	Vernon	31.7%
Cole	18.8%	Mississippi	26.8%	Warren	11.6%
Cooper	36.5%	Moniteau	29.6%	Washington	13.8%
Crawford	19.6%	Monroe	31.8%	Wayne	16.2%
Dade	37.6%	Montgomery	30.2%	Webster	19.5%
Dallas	19.6%	Morgan	11.6%	Worth	56.9%
Daviess	34.7%	New Madrid	19.1%	Wright	26.9%
DeKalb	30.9%	Newton	21.9%		
Dent	22.1%	Nodaway	36.1%		
Douglas	22.9%	Oregon	26.5%	Statewide Missouri	23.6%
Dunklin	21.8%	Osage	27.4%		
Franklin	18.7%	Ozark	16.3%		
Gasconade	30.7%	Pemiscot	22.2%		
Gentry	46.5%	Perry	26.4%		
Greene	18.0%	Pettis	30.9%		
Grundy	42.0%	Phelps	16.8%		
Harrison	46.0%	Pike	30.1%		

Housing Risks

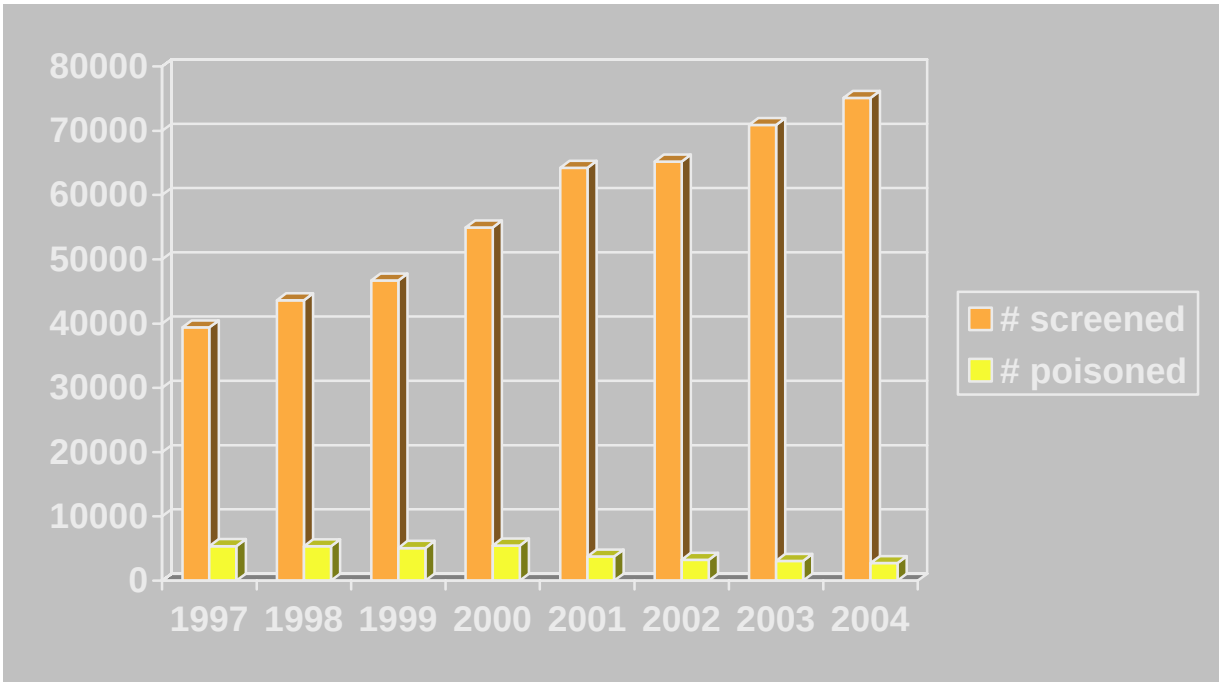
The national average of pre-1950 housing decreased from 27% in 1990 to 22% in 2000. Missouri is above the national average with 23.6% of housing units being built before 1950. The chart to the left lists the percentage of pre-1950 housing by county according to 2000 census data.

The pie chart below compares the largest metropolitan areas in Missouri. St. Louis City's housing is comprised of 64.4% of pre-1950 housing. St. Louis County contains 18.4% and Kansas City contains 36%. All other areas of Missouri (outstate) average 19.6% pre-1950 housing.



Testing and Prevalence

Due to CLPPP activities, Missouri's number of children less than six years old who have been tested for lead poisoning has increased from 39,402 in 1997 to 75,110 in 2004. Out of the number of children tested, the percentage found to be poisoned has declined from 14% to 4%. This decrease mirrors a nationwide decrease in children's blood lead levels. In 2004, of the 75,110 children in Missouri who received a blood lead test, 2708 (4%) had a blood lead level of 10 µg/dL or greater. Due to recent testing requirements and additional outreach and education, testing levels are expected to continue to increase. Refer to the chart below.



A few highlights from 2004 testing data…

- Over 75,000 children tested for lead during 2004, a 9% increase in testing since 2003.
- The number of children found to have lead poisoning decreased from 3,445 in 2003 to 2,708.
- In 2004, 28% of children less than six years of age living in Universal Testing areas received a blood lead test, with 7% being identified with an elevated blood lead level.
- Missouri's overall prevalence rate is 4%.

The blood lead testing data chart on the following pages identifies county-specific information. Included is the number of children tested and categories of blood lead levels identified.

Case Management Services

The CLPPP monitors case management, by use of the blood lead collection database, for children identified with two blood lead levels between 15 µg/dL and 19 µg/dL taken at least three months apart, or one blood lead level 20 µg/dL or greater. To facilitate local public health agencies' (LPHAs) follow-up, a quarterly report is provided to each county that identifies children 30 days overdue for a blood lead test. A report is also provided to LPHAs on children that have not had case management activities recorded in the blood lead data collection database. After reviewing the report, the LPHAs forward information regarding lead case management follow-up activities to the CLPPP for entry into the blood lead data collection system. Case management services may be performed by the LPHA, a managed care plan, a health care provider, or another contracted agency.

The table below reflects the number of medical cases of children less than six years of age that occurred during the time period 7/1/03 through 6/30/04 and whose case confirmation lead level is ≥20 µg/dL.

Year to Date	St Louis City	St Louis Co.	Kansas City	Other Areas
# of children referred for case management	514	58	53	95
# of children documented as receiving case management	502	55	46	48

A lack of reported case management information leads to a lower number of children documented as receiving case management. DHSS is working with case management providers to develop better tracking and reporting systems.

Environmental Services

The Missouri Public Health System provides lead risk assessments to detect the hazardous sources of lead exposure in children's homes. This service is provided for children under the age of six whose blood lead level has reached a specific level of concern as explained below.

A risk assessment is performed by a professional trained and licensed by the Lead Licensing and Accreditation Program. The assessor speaks with the child's family to determine areas of the home where the child spends the most time. X-ray Fluorescence Analyzers (XRF) are used, and dust and soil samples are collected to determine if and where lead hazards exist. Upon completing the assessment and receiving the lab analysis, the risk assessor provides the homeowner with recommendations for reducing lead hazards. The risk assessor revisits the home at an agreed-upon time to assure lead reduction has been accomplished.

The table below reflects the number of homes referred for inspection from the timeframe 7/1/03 through 6/30/04.

Year to Date	St Louis City*	St Louis County*	Kansas City*	Other Areas**
# of homes referred for inspection	346	54	77	80
# of homes receiving inspection	316	32	63	65
# of homes that have had lead hazard reduction activities accomplished	145	15	19	53

*Currently provides risk assessments at one blood lead level of 15µg/dL or greater.

**Other areas currently provide risk assessments at:

· a confirmed blood lead level of 20 µg/dL or greater,

· or two confirmed blood lead levels of 15 µg/dL or greater that are taken at least three months apart.

A lack of accurate home address information has lead to a lower number of homes receiving inspection.

Projects Funded Through The CLPPP

Staffing

The Childhood Lead Poisoning Prevention Program is staffed by the following positions:

- One Program Manager
- One Community Health Nurse
- One Health Educator
- One Surveillance Coordinator
- One Health Program Representative
- Two Data Entry Personnel
- One Environmental Specialist
- Six Licensed Lead Risk Assessors

Contracts

St. Louis City, St. Louis County, and Kansas City are Missouri's three largest metropolitan areas. According to 2000 census data and 2004 surveillance data, these three areas combined contain 68% of Missouri's lead-poisoned children. To decrease that percentage, these three areas are targeted through CDC contracts. The contracts allow the state lead program to monitor educational activities, lead testing and case management, and environmental issues. CLPPP is collaborating with DHSS's Section for Maternal, Child, and Family Health to utilize other funding sources and to assure these services are available to children in all other areas of Missouri.

Environmental contracts were established for other regions of the state to assure that children with an EBL receive accurate and timely risk assessments. These contracts provide EBL risk assessments for 84 of the 114 counties. CLPPP staff assures assessments in the other counties. The contracts resulted in more complete and timely compliance with reporting of risk assessment data. The data are used to track compliance with remediation recommendations.

Education contracts were established to ensure that educational outreach and primary prevention activities are conducted to increase blood lead testing and to reduce the prevalence of childhood lead poisoning in Missouri for children less than six (6) years of age.

In 2004, CLPPP established a contract with the Meramec Regional Planning Commission (MRPC). This contract allows MRPC to provide lead abatement in homes in eight Southeast Missouri counties. Priority will go to homes where children have been identified with an EBL. During 2004, MRPC personnel received training and potential property owners were contacted. Abatement work will begin in 2005.

Lead Poisoning Prevention Education

Twice each year, CLPPP develops an educational campaign and distributes materials to advocates statewide. The campaign goal is to provide stakeholders with the tools necessary to promote lead poisoning prevention. Themes, fact sheets, posters, and public service announcements are examples of campaign packet materials. The materials are to be used during a specific week or month to intensify the statewide effort.

CLPPP also develops and distributes a newsletter twice each year for local and state partners. Called the NewsLEADer, it contains resource information such as new publications available, websites, and tips for successful public outreach. Stakeholders are encouraged to share their lead poisoning prevention activities and ideas. Educational brochures and fact sheets are also available and can be ordered for community-wide use. Please contact the CLPPP for available materials and ordering information.

Collaborations

Collaboration with Agency for Toxic Substance and Disease Registry (ATSDR)/Environmental Protection Agency (EPA)/Missouri Department of Natural Resources (DNR)

Missouri citizens have been exposed to lead through mining, milling and smelting of lead ore, as well as lead-based paint. Missouri ranks as the top lead-producing state in the nation. Across the state, there are several sites containing hazardous lead-bearing substances.

In St. Francois County, six large mine tailings and chat piles from past mining and milling operations are located near residential areas. Tailings and chat piles are "lead waste" or the waste from the processing of lead ore. People and erosion have spread the waste throughout the area. Madison County also contains lead mine tailings piles from which people have used chat for traction along roads in winter and as fill in driveways and sandboxes. Similar situations have occurred in Jasper and Newton counties. Newton and Madison counties were placed on the EPA's National Priorities List in the Fall of 2003. In addition, there is an active lead smelter in Herculaneum, Missouri. The smelter processes lead concentrate from current mining and milling operations into lead ingots for further use in consumer products like batteries and computers.

DHSS, along with other state, local and federal agencies (including ATSDR, EPA, and DNR) are addressing these sites to protect the public's health. Multiple actions have been taken to reduce human exposure and prevent lead poisoning, especially to children less than six years old. Some of the actions taken by partnering agencies at the various sites to reduce exposure include monitoring of air, sampling of soil, water and dust, stabilization of the tailings piles, yard soil removals, street cleanings, interior home cleaning, reduction in smelter air emissions, and special blood lead testing events. Additional activities conducted by DHSS include health studies, health consultations, public health assessments, and ongoing educational activities.

Collaboration with DHSS's, Section for Maternal, Child, and Family Health

Collaborating with DHSS's Section for Maternal, Child, and Family Health (MCFH) has resulted in an increase in lead testing. MCFH has incorporated lead testing as an elective contract deliverable in their contracts with local public health agencies for maternal and child activities. Forty-six counties have selected lead poisoning as a deliverable in their contract. The contracts have also been utilized to reimburse local public health agencies for case management of children who do not have Medicaid. This allows local public health agencies to continue to perform case management functions when there is no other responsible party or payer source.

Collaborations continued

Collaboration with state Medicaid Agency

Poverty is one risk factor for lead poisoning. In Missouri, there are approximately 200,000 children less than six years of age (45% of total) who are eligible for Medicaid. According to 2004 data, 80% of the children with blood lead levels of 20 µg/dL or greater were Medicaid eligible.

DHSS and the Missouri Department of Social Services, Division of Medical Services (DMS) has had a cooperative agreement in place since 1998. This agreement outlines the agencies' mutual objectives regarding childhood lead poisoning to: 1) assure that Medicaid-eligible children are screened/tested according to the Statewide Lead Testing Plan; and 2) assure that medically necessary services are provided for Medicaid-eligible children whether by a Medicaid enrolled provider or MC+ Managed Care Plan for the correction or amelioration of lead poisoning-related conditions identified through a full or partial Early Periodic Screening Diagnostic Test.

CLPPP determines the Medicaid status of all Missouri children with blood lead levels $\geq$10 µg/dl via inquiry into the Medicaid database. The Medicaid status is coded into the blood lead data collection system, and reports of EBL children are generated, sent to DMS weekly, and forwarded to each MC+ Managed Care Plan. Case management activities for the Managed Care children are documented by Medicaid and provided to CLPPP for entry into the blood lead data collection system. This facilitates greater communication between the plans, DMS, DHSS and the local public health agencies.

Through data matches between DHSS and DMS, quarterly reports provide screening and prevalence data for the information and analysis that both agencies require. Development of these automated evaluation mechanisms has enhanced DMS's ability to monitor and improve Managed Care contractors' performance to assure follow-up occurs for Medicaid eligible children.

Collaborations continued

Collaboration with DHSS's Women, Infant, and Children (WIC) Program

High blood-lead levels that affect intelligence, behavior and development of children less than six years of age disproportionately affect minority and poor children. The Special Supplemental Nutrition Program for WIC is an important partner in efforts to combat the health risks of lead poisoning. By identifying high-risk children through a screening process during WIC clinic visits, referring children to their primary care provider for testing, or making blood lead testing available on-site, the likelihood that every child will be tested is improved. This practice also helps assure timely and appropriate follow-up care in the event a child is found to have an elevated blood lead level. During the spring of 2003, a taskforce comprised of representatives from local public health agencies (LPHA), WIC, MCFH and the CLPPP developed guidelines for implementing lead testing in WIC clinics. At that time, a survey was conducted to determine how many WIC agencies conducted lead testing at their clinic. From the responses, we determined that 29% were able to provide the testing.

When the guidelines were completed, they were mailed to each WIC agency, and presentations explaining the guidelines given at each LPHA meeting in the state. Another survey was conducted in December of 2003, and the result was that more than 50% of the WIC agencies are now providing lead testing.

Another strategy for increasing testing in WIC agencies was to discuss the effectiveness and ease of blood lead testing with filter paper at the LPHA meetings. Many WIC agencies found that using filter paper enhanced their capabilities in an environment that is not conducive to capillary blood sticks, while providing the familiarity of the blood draw for hemoglobin that they were already required to obtain.

Collaboration with the Missouri Department of Economic Development

The Missouri Department of Economic Development (DED) currently works with cities and counties to assure that Community Development Block Grant (CDBG) funding is made available for properties where children have been identified with an EBL. DHSS works with DED to locate funding for remediation. The DED has hosted lead-safe work practice trainings. The goal of the training is to explain safe rehabilitation practices to contractors and homeowners, which decreases the probability of additional children being exposed to lead hazards.

For More Information on Lead Poisoning Contact:

Childhood Lead Poisoning Prevention Program
Missouri Department of Health and Senior Services
930 Wildwood Dr. PO Box 570
Jefferson City, MO 65102
Phone: (573) 526-4911 or (866) 628-9891

Or visit our website at:
www.dhss.mo.gov/ChildhoodLead